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<div>Division of Forensic Science</div> <div>LATENT FINGERPRINTS PROCEDURES MANUAL</div>	Amendment Designator:
	Effective Date: 29-January-2004
<div>20 Cyanoacrylate Blowing Contraption (CBC)</div> <div>20.1 INTRODUCTION</div> <p>Obtaining identifiable latent impressions from human skin has long been of great interest to those investigating violent crimes in which the suspect has had direct contact with the victim. The successful recovery of suitable latent impressions in actual casework is quite rare. William Sampson [8] calculates the probability of successful recovery at 15,000,000 to 1 with only 11 recorded cases since 1977 reporting successful recovery from human skin. Although the potential for success is minimal, the benefits of the successful recovery and subsequent identification of latent impressions on human skin are apparent. The identification of an individual from an impression recovered from a victim of a violent crime provides for the most intimate association to the victim. The ability to recover latent impressions from skin diminishes rapidly with time. Impressions remain on the skin of live victims for a shorter time than deceased victims, but in either case the impressions may remain for a matter of only minutes to just a few days. However, dependent on the residue that the impression is left in and the environmental conditions to which the victim is subjected to the impressions may last a much longer time. The association of suspect to victim is even greater when combined with the fact that latent impressions do not remain on skin for extended periods.</p> <p>Recovery of latent impressions from human skin has been attempted using many different techniques. Techniques such as magnetic powders, regular powders, fluorescent powders, alpha- naphthoflavone, TEC, ardrex, rhodamine 6G, ruthenium tetroxide, the use of X-Rays, lasers and alternate light sources have all been attempted with varying degrees of success. Methods using transfer materials such as Kromecoate cards and PET plastic sheets have shown some success as well.</p> <p>Recent studies have detailed methods that may prove very successful for the recovery latent impressions from human skin. Sampson [8] proposes using the following sequential processing method:</p> <ol style="list-style-type: none"> 1. Visual; 2. Light sources (flashlight, long wave UV lamp and alternate light sources); 3. Direct Lifting; 4. Cyanoacrylate fuming; 5. Magnetic powder. <p>Sampson states, “No factors are more important to the effectiveness in recovering latent fingerprints from human skin than the surface temperature of the skin being processed and the difference that exists between that temperature and the lifting medium.” The lifting material used by Sampson included Kromkote paper, RC photographic paper, transparent lifting tape and PET plastic bags. He obtained the best results when the cadaver was 72 degrees F.</p> <p>Success was seen with the temperature range of 70-86 degrees F, but outside this range the success was greatly reduced. Digital thermometers were used to determine skin temperature and also the temperature of the lifting materials. Sampson suggested that, “skin temperatures in the low 70s require the lifting medium to be heated to approximately 90 degrees F. If the skin surface is warm the lifting material should be cooled prior to use. The goal is to create a temperature variance between the skin and the lifting medium of approximately 20 degrees F.”</p> <p>Wilkinson, et al [9] suggested a higher success rate for the recovery of suitable latent impressions on human skin of one percent. Factors affecting the success were listed as, “(a) whether the cadaver was touched; (b) whether a print with identifiable detail was transferred; (c) whether the transferred print persisted; (d) and whether the detection method is sensitive enough to detect the print.” The study conducted evaluated the use of cyanoacrylate fuming, the 3M ultraviolet cyanoacrylate cartridge, TEC, subsequent to cyanoacrylate processing, magnetic powder, ruthenium tetroxide, iodine/silver plate transfer and iodine/alpha-naphthoflavone. Varying degrees of success were noted with each technique. However, the processing of the skin with iodine followed by alpha-naphthoflavone (7, 8 benzoflavone) proved to be the most successful procedure used in this study. The use of alpha-naphthoflavone in conjunction with iodine produces a dark blue coloration of the impressions found on the skin. The authors suggested that additional study of this technique, as well as the use of fluorescent techniques, may provide for greater success in the future when processing skin.</p>	

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<p>The procedure described here will be that of CBC/black magnetic powder. This technique is only one of many techniques that have been shown to have some success. The attempt to recover latent impressions from human skin should only be done after thorough review of the literature and a complete assessment of the case. The description of the CBC procedure is not intended to limit the choices of the examiner. A thorough evaluation of the skin, on a case by case basis, should be done prior to the application of any technique. The appropriate techniques should be chosen and applied based on these observations and a thorough understanding of the techniques available.</p> <p>20.2 PREPARATIONS</p> <p>No specific preparations are needed as the cyanoacrylate materials being used are commercially prepared.</p> <p>20.3 INSTRUMENTATION</p> <p>Cyanoacrylate Fuming Chambers, Atmospheric and Vacuum, CBC</p> <p>20.4 PROCEDURE OR ANALYSIS</p> <ol style="list-style-type: none"> 1. Treat the specific area of skin chosen with Cyanoacrylate Ester, vapors with CBC. 2. Apply black magnetic powder to treated area. 3. Photograph any developed fingerprints. 4. Lift any developed fingerprints. <p style="text-align: right;">◆End</p>	